

## ABSTRACT

A method for spatially compressing data sets enables the efficient analysis of very large multivariate images. The spatial compression algorithms use a wavelet transformation to map an image into a compressed image containing a smaller number of pixels that retain the original image's information content. Image analysis can then be performed on a compressed data matrix consisting of a reduced number of significant wavelet coefficients. Furthermore, a block algorithm can be used for performing common operations more efficiently. The spatial compression algorithms can be combined with spectral compression algorithms to provide further computational efficiencies.